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The EXTENSION ENTOMOLOGIST

Excerpts from Report of Farm Family Life
Conference, January 22-23, 1940

J. L. Boatman, Chief, Division of Subject Matter, Extension Service, United States Department of Agriculture, said: "Our big job in extension work today is trying to figure out how we can present all these various subject-matter fields in a coordinated attack on the farmers' problem."

Cooperation and coordination such as have been developed in county planning committees are needed in the work of all specialists, agents, and community leaders. Land use planning committees offer machinery to find problems.

Farming has been thought of as a profit type of endeavor; for 60 percent of the farmers it is a way of life. For 40 percent, the profit motive is back of the endeavor.

The question was then raised, "Isn't it our business to teach rural people to get the most out of their income and to improve their livelihood by better spending and use of what they have?" It is necessary to recognize the importance not only of getting the most for our money, but of meeting individual needs so that each family member feels his needs are being met.

UNITED STATES DEPARTMENT OF AGRICULTURE
BUREAU OF ENTOMOLOGY AND PLANT QUARANTINE AND
EXTENSION SERVICE, COOPERATING

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UNITED STATES DEPARTMENT OF AGRICULTURE

Washington, D. C.

THE EXTENSION ENTOMOLOGIST

Issued by the Extension Service and the Bureau of Entomology and Plant Quarantine cooperating with other Federal and State agencies in the furtherance of extension work in entomology.

M. P. Jones

Senior Extension Entomologist

ANNOUNCEMENTS

Meetings

November 14-15, 1940. Eastern Branch, American Association of Economic Entomologists. Atlantic City, N. J.

November 22-23, 1940. Cumberland-Shenandoah Valley Fruit Conference. Martinsburg, W. Va. Shenandoah Hotel.

December 27-30, 1940. American Association of Economic Entomologists. Philadelphia, Pa. Benjamin Franklin Hotel.

February 13-15, 1941. Cotton States Branch, American Association of Economic Entomologists. Waco, Tex. This meeting will be held in conjunction with the annual meeting of the Texas Entomological Society.

Film Strips

Prices for United States Department of Agriculture film strips for the fiscal year ending June 30, 1941, are the same as those in effect during the past year. Prices for single prints range from 50 cents to 70 cents a strip, although the great majority of the series are priced at 50 cents and 55 cents each.

This year's contract was again awarded to Photo Lab, Inc., 3825 Georgia Ave., NW., Washington, D. C. All orders for Department film strips should be forwarded direct to the above firm, accompanied by remittance, except in the case of large institutions which follow the practice of issuing formal purchase orders. At the same time, send to the Extension Service of the United States Department of Agriculture a request to authorize the sale of the films desired. A request form may be obtained from the Extension Service. Film strips and lecture notes to accompany the series desired will be supplied promptly. The new catalog of film strips will be available within the next few weeks.

THE FUNCTION OF THE SPECIALIST IN FAMILY LIFE

S. P. Lyle, In charge, Agricultural and Home Economics Section, Extension Service, United States Department of Agriculture, suggested the following points for specialists to keep in mind:

1. Be authentic in your field of subject matter.
2. Adjust your subject matter to the situation, and coordinate your plan of procedure with related work.
3. Teach it effectively to accomplish measurable progress.
4. Inspire children to a spiritual growth that will give them the better vision that parents can give only with your aid.

Report of Farm Family Life Conference,
January 22-23, 1940.

EXCERPTS FROM ANNUAL REPORTS

Land Use Planning

In response to a request that all specialists in Michigan correlate their subject matter with the land use planning activities, a set of recommendations was prepared. These were planned specifically for each of the five counties selected in the State for the demonstration work. They are given here as submitted to H. A. Berg, the land use planning project leader, the county agricultural agents in the five counties, and the Soil Conservation Service administrator in the State. These were originally prepared on separate sheets for each county and appear here without a repetition of the heading for each which was the same as the heading for the entire listing here.

Recommendations to County Land Use Planning Committees

Primary Insect Control Problems

These problems are considered of sufficient economic interest to agriculture to be basic material in considering long-time agricultural plans.

C. B. Dibble,
Extension Specialist in Insect Control,
Michigan State College

All Grasshopper Counties (Counties north of T. Line 16 plus Ottawa, Muskegon, Montcalm, and those on the Upper Peninsula.)

Grasshoppers - These pests probably have been the greatest single factor in soil erosion in the area considered. The enormous loss

of ground cover, both natural and planted, each year has probably permitted more wind and water damage than have the agricultural activities in this area. (Two grasshoppers per square foot eat as much on every acre every day as a cow and a calf on each acre will eat.)

Recommendations -

Protect ground cover on all land, forest or agricultural, from infestations in excess of 1 grasshopper per square yard by use of poison bait.

Cass County - corn, wheat, truck.

Insects - European corn borer, hessian fly, chinch bugs, white grubs, cutworms.

Recommendations -

1. Avoid wheat after corn. Corn stubble must be plowed (corn borer and scab). To cover ground over winter, use oats seeded in last cultivation of corn.
2. Seed wheat only after fly-free date.
(Elevation of 700 ft. - September 22 - October 2;
Elevation of 1000 ft. - September 19 - 29.)
3. Chinch bugs - Avoid trashy ditch banks and fence rows on low level lands.
4. White grubs - Plow legume sods for corn, potatoes, strawberries, and root crops. Follow old timothy or June grass sods with buckwheat or small grains when plowed.
5. Bait for cutworm control to insure full stands on reduced acreages of row and hill crops.

--Annual Report, Michigan Extension
Entomologist, 1939.

Leader Training for Entomology Project

The entomologists realized that in order to reach the large number of farmers with the correct information about insects and insect control, it would be necessary to teach a few individual farmers much about insects. These men soon were given the name of "project leaders." The project leaders in entomology have accomplished a great deal and have been very useful in teaching garden and orchard insect-control lessons. The project leaders have been of much importance during the various outbreaks of devastating insects such as grasshoppers, hessian fly, chinch bugs, and screwworms.

The training of leaders was important, and the records for the past 20 years were as follows:

Year	Number of Counties	Number Local Leaders Trained This Year	Number Active Leaders Trained in Previous Years
1919	5	16	
1920	4	17	
1921	6	44	
1922	10	52	
1923	12	55	
1924	16	63	
1925	26	76	
1926	27	100	
1927	33	152	
1928	37	363	
1929	54	534	
1930	78	868	
1931	66	1056	
1932	45	721	
1933	51	1213	
1934	75	1388	
1935	69	744	690
1936	96	1060	1992
1937	104	732	1444
1938	105	479	819

--Annual Report, Kansas Extension
Entomologist, 1939

Solving Insect Problems of Stored Grain

Due to the fact that large quantities of grain are held in the State, the control of insects in stored grain and the significance of the different varieties of insects found in this grain have been particularly emphasized. Meetings have been held with elevator men, and many conferences have been held with individual elevator operators and with the officials of the Commodity Credit Corporation, Agricultural Adjustment Administration, and Illinois Agricultural Conservation Committee; county chairman in charge of corn loans; Bureau of Entomology and Plant Quarantine; and many other organizations interested in the problem of the protection of stored grain from insects.

Test fumigations have also been carried out in many grain bins at a number of points in the State.

Two meetings with a total attendance of 525 persons were held in connection with stored grain insect problems.

--Annual Report, Illinois Extension
Entomologist, 1939.

Fumigation Demonstrated for Federal Loan Bin Inspectors

Grain stored under government loan was found by the Federal inspectors to have an increasing grain-infesting pest population. They had recommended fumigating to the owner and had suggested the materials and method of procedure and found when counts were made after fumigating that the count was increasing. This seemed to be another case of not having an airtight container in which to fumigate; and when the bin was carefully lined with building paper and a suitable cover for the grain constructed of paper and blankets, the fumigant when applied by the specialist gave an 85 percent decrease in the population of live pests. The temperature at the time this fumigation was made was just slightly above 65 degrees. Considering this factor and the relatively high population of pests present, the 85 percent was considered a good kill and carried the grain into cold weather without any serious heating. This fumigation was conducted as a demonstration for the benefit of the Federal loan bin inspectors who were called in by the State supervisor. A few farmers, the county agricultural agent, and at least one member of the State Soil Conservation Committee were also present.

--Annual Report, Michigan Extension
Entomologist, 1939.

Area Grasshopper Control Demonstration

Five 1-square-mile areas were set up with the idea of demonstrating the feasibility of area control and the lasting benefit of such cooperative effort. All farms in the designated area were signed up for treatment, and the farmers made the bait application with the supervision and assistance of the county agricultural agents and the grasshopper supervisors. The bait was mixed in the regular county mixing station and delivered to all the cooperators in the area for distribution on the same day. The baiting was preceded and followed by survey observations on the population, and re-baiting was recommended in a few instances where the kill did not reduce the grasshopper population to a normal level.

Three news stories were furnished the county agents for use before, at the time of, and after the treatment, in the local papers. In addition, posters were tacked on the fences along all roads adjacent to the area, calling the attention of passers-by to the area as having been treated cooperatively. (See poster, Exhibit 1)

--Annual Report, Michigan Extension
Entomologist, 1939.

MICHIGAN EXHIBIT NO. 1 - POSTER

7 5, 0 0 0

OR MORE

D E A D G R A S S H O P P E R S

P E R A C R E O F G R A S S

ON

T H I S B A I T E D

S Q U A R E M I L E

COOPERATIVE DEMONSTRATION AREA:

UNITED STATES DEPARTMENT OF AGRICULTURE
MICHIGAN STATE COLLEGE
COUNTY GRASSHOPPER CONTROL COMMITTEE
FARMERS LIVING OR USING LAND IN THIS
SQUARE MILE

Fall Spray Conference

During the latter part of November a conference was held at the Geneva Experiment Station, attended by extension specialists and research workers, at which extension workers familiarized themselves with the more recently ascertained experimental data. This information was assembled and presented in summarized form to a conference of county agents in December by the research workers and the extension specialists. At this time the new developments of the 1938 season were analyzed and recommendations made for spray and dust schedules that were to be followed in the 1939 season. Such conferences are held annually in order to carry the research data directly to the fruit growers through the extension specialists and county agents. A summary of the talks given at the annual conference was prepared and sent in mimeographed form to all county agents, extension specialists, and research workers. Approximately 75 workers representing these 3 groups were present at the conference.

--Annual Report, New York Extension Entomologist, 1939.

Gardeners Use Better Methods for Control

There will be garden and orchard insects so long as there are gardens and orchards. The control of codling moth, as well as aphids, cutworms, and potato bugs, is an annual event in the garden. Farmers and commercial gardeners are using better materials and learning to mix many insecticides at home. They also use better methods of application which make the insecticides more effective. There were 50,754 gardeners in 71 counties practicing approved methods.

--Annual Report, Kansas Extension Entomologist, 1939.

Farm Bureau Women Go After Bugs

When the women of the farm bureau units go after bugs, well, the bugs better go on the run. Just examine the report on household insects and insects affecting sanitation and health and you may see why the clothes moth, bedbugs, cockroaches, and mosquitoes took to flight. It must also be remembered that these women had to combat black crickets, spiders, and cutworm moths. Bugs seem to like to enter the house.

--Annual Report, Kansas Extension Entomologist, 1939.

Work With Florists

According to the 1929 census data, the florist industry in New York represented an investment of \$30,576,763 in land, buildings, and equipment. The receipts from sales of cut flowers and potted plants were estimated at \$12,394,087. The annual losses in production and quality of crops due to insect damage amount to many thousands of dollars

in addition to the large outlay for insecticides and labor in control measures. The demand from florists for information on the control of injurious insects has steadily increased during recent years. The present low prices for flowers have greatly emphasized the need for more efficient and economical insect control. High production and high quality are increasingly necessary if the grower is to make a profit or even costs of production. Among the more important of the numerous insect pests that cause heavy annual losses are the red spider mite, cyclamen mite, mealy bugs, thrips, chrysanthemum midge, rose midge, greenhouse leaf tier, and white fly.

--Annual Report, New York Extension Entomologist, 1939.

Educational Work for Horse Bots

Horse bots were controlled by 5,258 farmers through the cooperation of the extension veterinarian, local veterinarians, and the educational work of the extension entomologist. This is a build-up of over a period of more than 12 years.

--Annual Report, Kansas Extension Entomologist, 1939.

Division of Time of Extension Entomologist

Days in Office, Field, and on Leave
November 1, 1938, to October 31, 1939.

Month	In county	State- wide	Out-of- State	En-Route	Total field	Total office	Total work	Leave			Nonworking Days	Total	
								Annual	Sick	Total	Sundays		
November	1	2 $\frac{1}{2}$	0	$\frac{1}{2}$	4	21	25	0	0	0	4	1	5
December	2	5	0	$\frac{1}{2}$	$7\frac{1}{2}$	$9\frac{1}{2}$	17	9	0	9	4	1	14
January	$12\frac{1}{2}$	0	0	0	$12\frac{1}{2}$	$11\frac{1}{2}$	24	1	0	1	5	1	7
February	13	3	0	$\frac{1}{2}$	$16\frac{1}{2}$	$7\frac{1}{2}$	24	0	0	0	4	0	4
March	$4\frac{1}{2}$	3	3	1	$11\frac{1}{2}$	$15\frac{1}{2}$	27	0	0	0	4	0	4
April	$3\frac{1}{2}$	3	0	0	$6\frac{1}{2}$	$18\frac{1}{2}$	25	0	0	0	5	0	5
May	$11\frac{1}{2}$	$\frac{1}{2}$	0	0	12	15	27	0	0	0	4	0	4
June	9	$3\frac{1}{2}$	0	1	$13\frac{1}{2}$	$12\frac{1}{2}$	26	0	0	0	4	0	4
July	9	4	0	1	14	10	24	0	0	0	5	2	7
August	9	$\frac{1}{2}$	1	$2\frac{1}{2}$	13	8	21	6	0	6	4	0	10
September	0	6	0	$\frac{1}{2}$	$6\frac{1}{2}$	$11\frac{1}{2}$	18	9	0	9	3	0	12
October	10	1	0	1	12	12	24	1	1	2	5	0	7
Totals	85	32	4	$8\frac{1}{2}$	$129\frac{1}{2}$	$152\frac{1}{2}$	282	26	1	27	51	5	83

Summary of Time Spent in Office by Extension Entomologist

Job	1938					1939					Total		
	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	
Day-Hr.	Day-Hr.	Day-Hr.	Day-Hr.	Day-Hr.	Day-Hr.	Day-Hr.	Day-Hr.	Day-Hr.	Day-Hr.	Day-Hr.	Day-Hr.	Day-Hr.	Day-Hr.
Correspondence													
Records, reports	3 - 5	1 - 1	1 - 1	1 - 4	2 - 7	2 - 4	1 - 1	1 - 4	2 - 6	1 - 6	2 - 2	1 - 1	23 - 2
Prep. for field	4 - 6	5 - 2	0 - 6	0 - 0	0 - 2	2 - 3	0 - 4	0 - 5	1 - 2	2 - 2	0 - 4	0 - 7	19 - 3
Writing bulletins	3 - 1	0 - 4	0 - 4	0 - 4	2 - 3	2 - 3	0 - 5	0 - 7	1 - 2	0 - 3	0 - 6	2 - 0	15 - 2
Publicity	0 - 0	0 - 0	0 - 0	1 - 0	0 - 4	0 - 0	0 - 0	0 - 0	0 - 0	0 - 6	2 - 1	0 - 4	4 - 7
Ext. staff conf.	0 - 3	0 - 0	0 - 2	0 - 0	0 - 0	0 - 4	0 - 0	0 - 0	0 - 3	0 - 0	0 - 0	0 - 0	1 - 4
Gen. office work	7 - 0	1 - 3	1 - 0	2 - 5	6 - 1	4 - 1½	2 - 4	0 - 4	3 - 6	2 - 3	5 - 0	4 - 3	40 - 6½
Subj. matter conf.	1 - 2	0 - 2	0 - 1	1 - 0	0 - 0	0 - 2	0 - 0	0 - 0	0 - 4	0 - 0	0 - 7	0 - 0	4 - 2
4-H Club Camp	0 - 0	0 - 0	0 - 0	0 - 0	0 - 0	0 - 0	0 - 0	0 - 0	6 - 4	0 - 0	0 - 0	0 - 0	6 - 4
Total	20 - 4	8 - 6	11 - 6	8 - 7	14 - 6	17 - 4½	5 - 0	11 - 4	9 - 7	7 - 4	11 - 4	9 - 5	147 - 1½

Extension Entomology in Missouri 1915 - 1939

Briefly summarized, extension entomology, from a project basis, has been involved in the following changes in agricultural extension work during its first 25-year period.

Period	Teaching Methods	Situation and Program
1915 - 1919	Schools, lectures, demonstrations. Reached individual farmers.	Produce food. War emergency assistance. Project organization.
1920 - 1924	Method and result demonstrations. Meetings began to reach more people through local leaders.	Price readjustment. Produce economically. Develop project type of program.
1925 - 1929	Demonstrations, meetings, use of local leaders.	Low prices, low cash return. Economical production on project basis.
1930 - 1934	Demonstrations, used more leaders, reached more people, surveys, train agents in subject matter.	Depression crisis. Government aid and A. A. A. program.
1935 - 1939	Train local leaders and agents, conferences, training meetings of groups, surveys. Perhaps fewer demonstrations.	Gradual shift from project basis to more coordinated projects, emphasizing the problem approach. Cooperate with A.A.A. and other governmental programs.

--Annual Report, Missouri Extension Entomologist, 1939.

TIMELY TOPICS

Scientists Hit "Wisecrackers"

"There is perhaps no greater danger to public welfare than complaints (wisecracks) of political newspapers and campaign speakers that the Government is spending money uselessly in the study of insect life," says the Journal of the American Veterinary Medical Association for June. "The columnist who thought it was quite humorous that the Federal Bureau of Entomology and Plant Quarantine was studying the life of the termites is certainly a candidate for Public Enemy No. 1....

"Scientists and practitioners engaged in the control of metazoan parasites of plant and animal life need better press agents, or perhaps the country needs more of the altruistic type of statesmen. Loose talk to receptive audiences on this.... strikes at the very root of successful government."

Life Depends on Agriculture

"The well-being of a people is like a tree; agriculture is its root, manufacture and commerce are its branches and life; if the root is injured, the leaves fall, the branches break away and the tree dies," said Shonhung, Chinese Emperor and inventor of agricultural implements, 2800 B.C." (Canadian Forest and Outdoors for May.)

Hopper Bait Not Harmful to Birds

"The Wisconsin Experiment Station announces that it is highly improbable that arsenical grasshopper baits of the formulas commonly used by farmers are of any danger to pheasants, so the bait can be safely spread in areas where those birds are found," says an item in Country Gentleman, July. "Some caged pheasants ate the bait when moderately hungry, but most of them avoided it when other food could be reached. Likewise, the birds ate poisoned grasshoppers readily and apparently suffered no bad effects. One pair was fed a diet of poisoned grasshoppers for 8 days, consuming 2,855 insects during that time; and though they lost weight, they commenced to gain as soon as grain was added to the grasshopper ration...."

Natural Control of Grasshoppers

The very satisfactory results of the Federal-State grasshopper control operations in all States in which the work was conducted this season were aided materially in localized areas by combinations of natural conditions. In some areas predators, consisting chiefly of bee fly and blister beetle larvae, sarcophagid flies, as well as birds and small rodents, destroyed many of the egg pods and later the grasshoppers.

In Kansas and Nebraska a fungus was reported as aiding in the reduction of grasshopper populations in several localized areas. In Colorado and New Mexico, bird predatism, chiefly by the western horned lark, has been a major factor. Horned larks were observed devouring large numbers of *D. longipennis*, and in Utah huge flocks of sea gulls were observed consuming large numbers of grasshopper nymphs in four counties early in May. Wind-blown sand in several counties in Wyoming and Colorado buried many grasshopper egg pods under several inches of dust and retarded or prevented hatching, and in a few instances dehydration of exposed egg pods was observed.

An Evaluation of Tillage as a Means of Controlling Grasshoppers

Considering the importance of the grasshopper control program and the need for definite information on the relative efficiencies of the different tillage methods on grasshopper control, the results on

this project are the most significant accomplishments in entomological research of this station for the past year.

The experiment showed that the methods of tillage applied before the hatching of grasshopper eggs rated in efficiency in prevention of grasshopper emergence approximately as follows:

Regular moldboard plowing,	98 percent
One-way disk plowing,	84 "
Double disking,	64 "
Duckfooting,	47 "

The two latter tillage methods were shallow in nature and corresponded closely to the tillage occasioned in "stubble in" of crops, which suggests why "stubble in" of grasshopper egg infested soil usually results in subsequent destruction of the crop by grasshoppers.

--North Dakota Agricultural Experiment Station, Department of Entomology

Squash-Vine Borer Treatments in New York

Anyone planning to use insecticidal treatments for squash-vine borer control should make the first application between June 25 and July 1. It will be necessary to make three to four additional applications at approximately weekly intervals. A 1-percent rotenone dust has worked very well in experimental plats, and it seems to be about the easiest thing to apply. Nicotine sulfate at the rate of 2 quarts to 100 gallons of water is also effective but more expensive. A derris or cube suspension consisting of 4 pounds of powdered derris or cube root (4 percent rotenone) to 100 gallons of water also works very well but is somewhat less effective than the rotenone dust or the nicotine spray. A suitable spreader should be used with the sprays.

Derris-Pyrethrum-Sulfur Dust Mixture Effective Against Bean Leaf Beetle and Associated Insects on Beans

L. W. Brannon, of the Norfolk, Va., laboratory, Bureau of Entomology and Plant Quarantine, reports that preliminary results of an experiment conducted for the control of the bean leaf beetle on snap beans showed that a derris-pyrethrum-sulfur dust mixture is highly toxic to this insect, one application of the dust mixture resulting in the death of approximately 91 percent of the insects at the expiration of a 24-hour period after the insecticide was applied. The results obtained with this insecticide are of considerable importance in view of its value as an all-purpose dust mixture for the combined control of several species of insects commonly attacking beans, including the Mexican bean beetle, the bean leaf beetle, the potato leafhopper, the common red spider (Tetranychus bimaculatus Harvey), and for the prevention of powdery-mildew disease. Examinations 7 days after the insecticide was applied demonstrated a reduction of approximately 60 percent in the number of bean leaf beetle adults on plots treated with this material, as compared with the population of this insect on untreated plots grown under comparable conditions.

Asparagus Beetle Parasite Shipped From Washington to California

During the month of May, B. J. Landis and his associates at the Puyallup, Wash., laboratory, Bureau of Entomology and Plant Quarantine, sent to the California Citrus Experiment Station at Riverside, Calif., 2,000 adults of Tetrastichus asparagi Crawf., a parasite of the asparagus beetle, for release in the asparagus fields of Orange County, Calif., where the eggs of Crioceris asparagi were numerous. Additional shipments are to be made from Puyallup to Riverside later in the season.

Science Marches On, Aiding Agriculture

"May and June will see a hundred big dusters fighting bugs in pea fields in the Pacific Northwest," says the Farm Journal and Farmer's Wife for May. "Because of the effectiveness of these dusters (with aprons behind) in killing insects, a new canning plant will be built at Walla Walla, Wash. It will do an annual business of \$750,000..... Thus a branch of agriculture capable of producing many millions of dollars is assured security and growth. For all this, scientific research in pest control should get a big slice of credit."

Various Sprays Control Cyclamen Mite on Snapdragon

Floyd F. Smith, of the Beltsville, Md., laboratory, Bureau of Entomology and Plant Quarantine, reports that, among 11 spray combinations applied to snapdragons for the control of the cyclamen mite (Tarsonemus pallidus Banks), lime-sulfur (1-200), a commercially prepared insecticide containing lauryl thiocyanate, white oil emulsion, and tartar emetic with glycerin were the most effective. Four applications of the spray combinations were made during December 1939 and January 1940 to snapdragon plants infested with T. pallidus. Their efficiency was compared on the basis of (1) plant injury by sprays, (2) injury by mites, and (3) population of mites on infested parts. Preliminary observations indicated that 1 application of most of the materials used was slow in action or ineffective. The final estimate of efficiency in control was based on the reduction of mite infestation on slightly injured tips, it being assumed that the severely injured tips could be removed by hand. A commercially prepared material containing cyclohexylamine diluted at the rate of 1-600, without additional spreader, severely injured young growth and cannot be recommended for spraying snapdragons, even though achieving a control of 90.4 percent of the mites. Ammonium polysulfide and sodium polysulfide at dilutions of 1-200, with a spreader, gave low percentages of control of 7.3 and 13.5 percent, respectively, and also were objectionable because of their odor.

Australian Tick Might Menace United States

Southwestern Sheep and Goat Raiser, for June, says: "It has been reported that the Australian tick has been found in cattle of northern Mexico and that some 57 head of cattle carrying these ticks are reported to have wandered over at least 7 pastures this side of the Rio Grande. They were supposedly smuggled across the river. "The Australian

tick is much more dreaded than the Texas fever tick. It can be distinguished from the Texas tick by the fact that the male has a short, stubby "tail," declared Harry F. Hornby, United States Collector of Customs for the Laredo district. "Deer and hogs are known to be carriers of the Texas fever tick, but the insects cannot complete their life cycle on them, whereas the life cycle of the Australian tick can be completed on these animals. It is almost certain that deer especially, would aid in spreading the Australian tick in the pastures of this country should the pest gain a foothold north of the Rio Grande!"

Overwintering of *Dermacentor variabilis* Eggs

At the Martha's Vineyard laboratory, Bureau of Entomology and Plant Quarantine, Carroll N. Smith, in the course of observations on the duration of the developmental stages of the American dog tick under outdoor conditions, found one egg mass in which hatching had begun last fall, had stopped because of winter weather, and had resumed again in May. In three groups of larvae molting resumed after having been interrupted by winter, but no new lots of eggs or larvae were observed to start hatching or molting in May.

Power Used for Sheep Dipping

"Power farming has become so much a part of the agricultural picture that it now extends to dipping sheep," says A. J. Patch, agricultural editor at Ohio State University, in the Country Gentleman for June. "Portable dipping equipment operated on a custom basis has replaced nearly all other means of controlling external parasites of sheep in Ohio. Clinton County has 13 sheep-dipping rings made up of groups of farmers owning cage and sweep equipment for dipping their flocks, but almost every one of those flocks was dipped in a portable custom outfit in 1939. Twenty custom outfits were operating in the State last year, and at least 125,000 sheep were dipped.

"L. K. Bear, animal husbandry specialist, Ohio State, says the dipping outfits show every kind of engineering ingenuity, as many of them were built from plans furnished by their owners. One man, a small operator, designed a unit so compact that it was bought for commercial manufacture.... All operators are using an arsenical which controls parasites with one dipping."

Painted Flies Reveal Flight Distances

Guy McConnell, writing on Disease Has Wings in Scribner's for June, says: "Last fall, long after the first frosts had exterminated the last of the winged pests about our premises, our kitchen was suddenly invaded by a cloud of houseflies that in an instant swarmed through every room. I investigated and saw buzzards dipping over woods a mile beyond village limits. Using the buzzards as guides, I walked to the woods and found the decaying carcass of a pig. Thousands of flies were feeding and breeding on the remains, and winging away in every direction to become public enemies of the air. I related that experience to Dr. John R. Mehler,

Chief of the Bureau of Animal Industry... He told me the disease-carrying housefly roams far and wide, having crossed the Mediterranean and English Channel. They have flown down-wind from Cuba to the Florida Coast, 95 miles. Mohler, in his position as head of the largest sanitation and meat-inspection bureau in the world, long ago unmasked the migratory housefly as the worst of the insect public health enemies. His men caught and painted flies red, and broadcast pleas that any red flies seen be reported to him by phone. Some of the painted flies covered 11 miles bucking head winds in less than 48 hours. They flew in bad as well as good weather, but never returned to their filthy breeding places where they were trapped and released.

"Near Miles City, Mont., 387,877 marked flies were released. At 79 stations, city-wide, 1,056 were captured. Within 48 hours, from four starting points, the whole city was infested. Here the dispersion beyond the city line was from 5 to 12 miles, in all directions. In the course of their lives, houseflies, living but from 3 days to 4 weeks, become ancestors of more than 9 generations, and the male is a polygamist. In her lifetime, the female lays 4 batches of 120 fertilized eggs and from these are hatched more than 5 trillion descendants, about half of which are males. ..."

Methyl Bromide Gassing Pleases Fruit Growers

"California is going to have another big year in the use of methyl bromide, introduced by D. B. Mackie of the State Department of Agriculture. "Gassing fruits, vegetables, nursery stock, etc., with methyl bromide has proved to be an excellent method of fumigation, and pear growers who gassed some 3,200 cars of pears last year as a precaution against the invisible worms, are so pleased with the improved ripening of the fruit that they will continue the method both as a precaution against possible worms and as an addition to the quality of fruit." (Pacific Rural Press of June 29)

Vacuum Fumigation of Sacked Feed with Methyl Bromide

R. T. Cotton and J. C. Frankenfeld, of the Manhattan, Kans., laboratory, Bureau of Entomology and Plant Quarantine, report that in the vacuum fumigation of oat feed with methyl bromide, a dosage of 4 pounds of the fumigant per 1,000 cubic feet of space, with a full load, gave a 100-percent kill of flour beetle eggs and adults with a 3-hour exposure. With a 15-hour exposure a dosage of 3 pounds per 1,000 cubic feet of space gave a complete kill. The temperature of the feed in the first case was 67° F. and in the second 68° F. It is interesting to note that in both cases insects were actively crawling over the bags of feed when they were removed from the vacuum chamber at the end of the fumigation. They were all dead, however, within 24 hours. This delayed killing effect is characteristic of methyl bromide and some other fumigants. The fumigation of foodstuffs with methyl bromide is not recommended by the Public Health Service or by the Department of Agriculture because of bromine residues left during fumigation.

Wind Interferes with Mill Fumigation

Messrs. Cotton and Frankenfeld, of the Manhattan, Kans., laboratory, Bureau of Entomology and Plant Quarantine, also report that in the recent fumigation of a brick flour mill and warehouse with methyl bromide during a period when the wind reached at times a velocity of 38 miles per hour, practically no kill was obtained in the warehouse, which was on the windward side of the building. The gas was apparently all blown over into the mill, where the kill was satisfactory. The dosage of 1 pound of methyl bromide per 1,000 cubic feet had been found entirely adequate in the warehouse last year when there was no wind. The desirability of delaying a fumigation until the wind has died down is evident.

Ants Gather Buffalo Grass Seed in Texas

"Buffalo grass seed is hard to obtain," says Capper's Farmer for May. "Technicians of the Soil Conservation Service had noticed that red ants often piled good, viable seed around their mounds in Bell County, Tex. They suggested that Frank Mayborn, who wanted some, try gathering it around ant hills. In 2 days a man with a street sweeper's broom swept 788 pounds of seed and foreign material into piles. This was shoveled into sacks and 201 pounds of pure seed were taken from it by recleaning. Samples were sent to a State branch experiment station where tests showed a germination of 40 percent. In a similar test, 43.4 percent of the seed gathered from buffalo grass turf germinated. W. J. Neumann, of the Soil Conservation Service, says the grass gathered by Mayborn is sufficient to seed 25 acres if drilled in 3-foot rows and permitted to cover the ground by spreading."

Windbreaks Bring Birds

The number of birds and other wildlife on farms in North and South Dakota, Kansas, Nebraska, Oklahoma, and the Texas Panhandle has increased as a result of field windbreaks, the Forest Service reports. Since 1935, more than 11,000 miles of field windbreaks including some 125 million trees, have been planted under Forest Service supervision on farms in the six States. The increase of insect-eating birds in the tree windbreaks was disclosed recently by a preliminary "bird census" carried out by the Forest Service. Done on a sampling basis for the most part, the check revealed such striking indication of bird increase on farms with windbreaks that a more thorough survey of windbreaks planted by the Service is being sought. In two of the States, local officers sent questionnaires to owners of farms in typical, widely scattered sections. In the others, Forest Service men made counts of birds in some places and of nests in others.

Silkworms To Produce in California

According to a UP dispatch from Fresno, June 12, farmers of the fertile San Joaquin Valley in California are considering the possibilities of producing silk and rubber on their land. Production of silk in Tulare

County as a major industry is considered a distinct possibility, while the rubber-producing plant guayule could be grown profitably in Kern County, provided the commercial price of rubber climbs to two or three times its present level. A. Kasanjian, of Yettem, and Philip Avedigian, of Dinuba, two Armenian immigrants, have announced that they intend to propagate 80,000 mulberry trees to provide food for silkworms. They estimate they have about 1 million silkworms now hatching. Lewis A. Burtch, Kern County Agricultural Commissioner, said that guayule was grown successfully in Kern County several years ago on a ranch near Wasco. He pointed out, however, that despite favorable climate and water conditions, the costs of production in relation to the price were excessive.

New Poison Ant Trap

Prof. Dwight M. DeLong, of Ohio College of Agriculture, in the June National Seedsman, tells about a new poison ant trap, developed at the College. He says: "Ants are frequently baited by attractive materials, but the greatest weakness of an ant bait is that it dries out rapidly when exposed, which causes it to become . . . noneffective as a killing agent. This difficulty has been overcome . . . by the use of a humidistat in the container which prevents the moisture in the bait from evaporating because the humidistat automatically replaces this moisture as it becomes dissipated in the air. Therefore . . . the bait remains effective only a few hours . . . The sealed can may safely be used in homes because children and pets cannot reach the poison without destroying the metal container, and since the contents are held in absorbent materials they do not leak or seep from the can . . . "

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